

REMARKS

I. STATUS OF THE CLAIMS

Claims 1-26 are presently pending. Claims 1, 2 and 5 have been amended without prejudice, Claims 6 and 14-26 have been canceled without prejudice, and new Claims 27-38 have been added. Applicant hereby reserves the right to pursue the cancelled claims as originally presented, or claims of a similar scope, in a related application. The amendments to the claims are supported by the claims as filed and the specification.

II. RESTRICTION OF THE CLAIMS

In the Official Action, the claims were subject to restriction pursuant to 35 U.S.C. § 121. The Examiner divided the claims into two groups which allegedly represent two separate inventions: Group I, consisting of claims 1-13 which are drawn to a lithium battery, and Group II, consisting of claims 14-26 which are drawn to a method of reducing capacity fade rate of a lithium battery. The Applicant now affirms the provisional election with traverse to prosecute the invention of Group I, claims 1-13.

III. THE EXAMINER'S OBJECTIONS ARE OVERCOME

A. The Objection to Claim 2 is Overcome

The Examiner objected to claim 2 under 37 C.F.R. § 1.175(c) as being in improper dependant form for failing to further limit the subject matter of a previous claim. In particular, the Examiner noted that claim 2 improperly broadened the temperature

limitation of claim 1 by including temperatures of 650°C or greater. The Applicant overcomes this objection with an amendment to claim 2 by deleting the phrase “at greater or equal to 250°C” and inserting the phrase “to a temperature in the range of 250°C to 450°C.” Reconsideration by the Examiner and withdrawal of this objection is therefore respectfully requested.

B. The Rejection of Claim 5 is Overcome

The Examiner rejection of claim 5 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention. Specifically, the Examiner questioned the meaning of the phrase “greater than about 0.01%,” noting that it was unclear whether the term “about 0.01%” in such phrase included the value of 0.0099%. This rejection is respectfully traversed for the reasons set forth hereinafter.

Although a claim may be rendered indefinite by reference to an object that is variable, the term “about” has been ruled as definite in situations where the range of the value covered by the term “about” can be determined. See MPEP § 2173.05(b) (citations omitted). Here, it is clear from the specification that the term “about 0.01%” refers to the percent by weight of the coating compound relative to the active cathode compound, producing a capacity fade rate reduction comparable to that obtained using 0.01% by weight. The objective is to prevent infringers from avoiding responsibility through meaningless changes to the coating composition.

Thus although the actual value may be variable, or “flexible,” the meaning of the phrase “greater than about 0.01%” is clear. See MPEP 2173.05(b) (citations omitted). Reconsideration by the Examiner and withdrawal of this rejection is therefore respectfully requested.

IV. THE EXAMINER’S REJECTIONS ARE OVERCOME/TRAVERSED

A. The Claimed Invention is Patentable over Amatucci et al.

The Examiner rejects claims 1, 2, 5, 9, 11 and 12 under 35 U.S.C. § 102(b) as being anticipated by Amatucci et al., U.S. Patent No. 5,705,291. This rejection is respectfully traversed in view of the above claim amendments for the reasons set forth hereinafter.

Claim 1 has been amended to incorporate the limitations of claim 6, which the Examiner implicitly acknowledges as defining the invention patentably over Amatucci et al. By amending claim 1 in this manner, this rejection has been overcome. Reconsideration by the Examiner and withdrawal of this rejection is therefore respectfully requested.

B. The Claimed Invention is Patentable over Uehara et al.

The Examiner rejects claims 1-12 under 35 U.S.C. § 102(b) as being anticipated by and alternatively unpatentable over Uehara et al., JP 09-330720. These rejections are respectfully traversed in view of the above claim amendments for the reasons set forth

hereinafter.

Uehara et al.. does not anticipate claims 1-12 of the present invention as it does not teach every aspect of the claimed invention either explicitly or implicitly. Uehara et al. does not the use of heating temperatures less than 650°C as claimed in the present invention.

The Examiner also rejects claims 1-13 over Uehara et al. as being obvious as such claims improperly contain product-by-process limitations without the presence of unexpected results, citing MPEP 2113. In particular, the Examiner states that the heating temperature of Uehara et al., 650°C, falls just outside the heating temperature range of the present invention, 250°C to less than 650°C, and thus the coated cathode compound of Uehara and the coated cathode compound of the present invention appear to be the same.

The Examiner also rejects claims 3 and 4 over Uehara et al. as being obvious as such claims improperly contain product-by-process limitations without the presence of unexpected results, again citing MPEP 2113. The Examiner notes here that although there is a different method of creating the coating compound (dry mixed vs. mixed in an aqueous solution), the coated active cathode compound appears to be the same. These rejections are respectfully traversed for the reasons set forth hereinafter.

The Examiner's interpretation of MPEP § 2113 as rejecting all process-by-product claims for obviousness in the absence of unexpected results is incorrect. MPEP § 2113 provides that patentability of process-by-product claims is based on a comparison of the product itself with the prior art product, not a comparison of the respective methods of

production. See MPEP § 2113 (citing *In Re Thorpe*, 777 F.2d 695, 698 (Fed. Cir. 1985)). An applicant can overcome this type of rejection by establishing that there is an unobvious difference between the claimed product and the prior art product. See MPEP § 2113 (citing *In re Marosi*, 710 F.2d 798, 802 (Fed. Cir. 1983)).

The use of a lower heating temperature as claimed in the present invention is critical to the invention as claimed. The use of a 650°C and higher heating temperatures do not produce a battery with decreased capacity fade rate, as demonstrated in the Examples. Furthermore, the heating temperature of claim 1 is restricted to a range of 250°C to 450°C in claim 2, which further patentably defined over Uehara et al. The use of lower heating temperatures has been discovered by Applicant to produce an unexpected result, namely a cathode active material with a decreased capacity fade rate.

Thus the claimed invention is patentable over Uehara et al. Reconsideration by the Examiner and withdrawal of this rejection is therefore respectfully requested.

C. The Claimed Invention is Patentable over Uehara et al./Gosho et al.

The Examiner rejects claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Uehara et al. in view of Gosho et al., 6,589,694. The Examiner acknowledges that Uehara et al. did not teach the electrolyte solvent of claim 13, but cited Gosho et al. as teaching this limitation. This rejection is respectfully traversed for the reasons set forth hereinafter.

Claim 13 depends from claim 1 and is directed to allowable subject matter by the claim 1 temperature limitation for the reasons discussed above. The combination of

Uehara et al. and Gosho et al. does not render claim 13 obvious because both references use a heating temperature of 650°C or higher. The combination of Uehara et al. and Gosho et al. do not suggest the use of temperatures below 650°C in the coating process. Because the use of lower heating temperatures produces a cathode active material with decreased capacity fade rate, claim 13 is patentable over the cited combination of Uehara et al. in view of Gosho et al. Reconsideration by the Examiner and withdrawal of this rejection is therefore respectfully requested.

V. NEW CLAIMS 27-38 PATENTABLY DEFINE OVER THE PRIOR ART OF RECORD

New claims 27-38 are directed to batteries in which the cathode active materials coated with only from about 0.01% to about 0.15% by weight of lithium borate, a significantly lower quantity than disclosed by Amatucci et al. as explained in the specification, minimizing the borate compound used is important to maximizing the absolute capacity. As demonstrated in the Examples, such minor quantities of borate compound unexpectedly produce a significant capacity fade rate reduction. Amatucci et al., by teaching that greater quantities should be used despite the capacity reduction this will produce, in essence teaches against the subject matter of the newly-presented claims. Accordingly, claims 27-28 define patentably over Amatucci et al.

Claims 27-38 also incorporate the heating temperature range limitation of claims

1-13 and define patentable over Uehara et al. and Gosho et al. for the reasons given above with respect to claims 1-13.


In view of the foregoing remarks, favorable consideration and allowance of claims 27-38 is therefore respectfully requested.

VI. CONCLUSION

The foregoing claim amendments and remarks are believed to address all of the concerns raised by the Examiner. Favorable reconsideration and a prompt Notice of Allowance are solicited earnestly.

In the event any issues remain outstanding, the Examiner is requested to call the undersigned at the telephone number listed below. The Commissioner is authorized hereby to charge any fees or credit any overpayment associated with this Reply (copy enclosed) to Deposit Account Number 19-5425.

Respectfully submitted,



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